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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/676,966      | 10/01/2003  | Jean-Yves Lehman     | Serie 5802          | 8122             |

7590 10/18/2004

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EXAMINER

WALBERG, TERESA J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3742

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/676,966

Applicant(s)

LEHMAN, JEAN-YVES

Examiner

Teresa J. Walberg

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 11-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/1/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11-13, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Belaieff (2,376,749).

Belaieff discloses a plate type heat exchanger having the claimed structure including at least one stacked dividing plate (6) with a roughly uniform thickness, at least one passage between said plates(s), at least one flat rectangular fin (9) in the passage, and the ratio of the minimum thickness (0.005 in.) of each fin (9) to the thickness (0.003 in.) of each said dividing plate (6) is greater than about 0.8. ( $0.005 / 0.003 = 1.667$ )

With respect to claim 19, Belaieff also discloses a fin (3) with a thickness of 0.003 in. and a wall (2) with a thickness of 0.005 in., which meets the requirement that the ratio of the thickness of the fin to the thickness of the plate be smaller than about 0.8.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14, 15, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belaieff (2,376,749) in view of Burns et al (2,566,310).

Belaieff, as discussed above, discloses a plate type heat exchanger with the claimed structure, with the exception of the ratio of the thickness of the fin to the plate being greater than about 2, the thickness of the dividing plate ranging from about 0.6 mm to about 2 mm, and the heat exchanger being used in an air separation apparatus including columns, which is used for heating oxygen.

Burns et al disclose a plate type heat exchanger (see Figs. 4 and 5) used in an air separation apparatus for heating oxygen (see the first paragraph of column 1) and including columns (see Figs. 7 and 8), where the thickness of the dividing plate (11) ranges from about 0.6 mm to about 2 mm (col. 3, lines 22-24 disclose "0.008 to 0.125 inch", which equals 0.203 to 3.175 mm) and the ratio of the thickness of the fin to the plate is greater than about 2 (col. 4, lines 52-53 disclose a fin thickness of "0.005 to 0.06 inch",  $0.06 / 0.008 > 2$ ).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 states in the last line that the ratio of the thickness of fin to the plate is smaller than about 0.8. This appears to be inconsistent with the specification which teaches to use of a ratio greater than about 0.8.

Clarification is required.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kuehl, Manfredo, Hoffman, Parker, Friedericy et al are cited to show heat exchanger fin structure.

Fujita, Srinivasan et al, and Davidian et al are cited to show oxygen heating heat exchangers.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 703-308-1327. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 703-305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Teresa J. Walberg  
Primary Examiner  
Art Unit 3742

tjw